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ON THE TAXONOMY OF THE GENUS *BARSINE* WALKER, 1854 (LEPIDOPTERA: EREBIDAE: ARCTIINAE)

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Summary. It is established that all previous records of *Barsine spilosomoides* for eastern Himalaya belong to females of *Barsine defecta* Walker, 1854, and records of *B. defecta* from Thailand and Vietnam belong to *Barsine gratissima* (de Joannis, 1930), **comb. n.** The new synonymy is established: *B. defecta defecta* Walker, 1854 = *Lyclene indistincta* Moore, 1878, **syn. n.**, = *Miltochrista magna* Hampson, 1894, **syn. n.** Two new subspecies are described: *B. defecta rubella* Volynkin et Černý, **subsp. n.** (China: Yunnan) and *B. gratissima versicolor* Volynkin et Černý, **subsp. n.** (Thailand and Laos). *Miltochrista spilosomoides* (Moore, 1878) is transferred here to the genus *Barsine*; moreover, *B. linga spilosomoides* (Moore, 1878), **comb. et stat. n.** is considered only as a subspecies of *Barsine linga* Moore, 1859. *Barsine kulingensis* (Daniel, 1952), **comb. et stat. n.**, previously treated as a subspecies of *Miltochrista spilosomoides*, is upgraded here to the species level. The species status of *Barsine gilveola* (Daniel, 1952), **comb. n.** is confirmed. The lectotype of *Miltochrista magna* Hampson, 1894 is designated. The male and female genitalia of *B. gratissima* and *B. linga spilosomoides* are illustrated for the first time. Diagnoses for all included in paper species are given.

Key words: : Lithosiini, Nudariina, *Barsine*, taxonomy, new subspecies, new synonymy, new combination, lectotype designation, Asia.

А. В. Волынкин, К. Черни. О таксономии рода *Barsine* Walker, 1854 (Lepidoptera: Erebidae: Arctiinae) // Дальневосточный энтомолог. 2017. N 346. С. 17-32.

Резюме. Установлено, что все предыдущие указания *Barsine spilosomoides* для восточных Гималаев относятся к самкам *Barsine defecta* Walker, 1854, а указания *B. defecta* из Таиланда, Лаоса и Вьетнама принадлежат к другому виду, *Barsine gratissima* (de Joannis, 1930), **comb. n.** Установлена новая синонимия: *B. defecta defecta* Walker, 1854 = *Lyclene indistincta* Moore, 1878, **syn. n.**, = *Miltochrista magna* Hampson, 1894, **syn. n.** Описаны 2 новых подвида: *B. defecta rubella* Volynkin et Černý, **subsp. n.** (Китай: Юньнань) и *B. gratissima versicolor* Volynkin et Černý, **subsp. n.** (Таиланд и Лаос). *Miltochrista spilosomoides* (Moore, 1878) отнесен к роду *Barsine*; более того, *B. linga spilosomoides* (Moore, 1878), **comb. et stat. n.** рассматривается в лишь качестве подвида *B. linga* Moore, 1859. Статус *Barsine kulingensis* (Daniel, 1952), **comb. et stat. n.**,

ранее трактовавшегося как подвид *Miltochrista spilosomoides*, поднят до уровня вида. Подтвержден видовой статус *Barsine gilveola* (Daniel, 1952), **comb. n.** Обозначен лектотип *Miltochrista magna* Hampson, 1894. Впервые проиллюстрированы гениталии обоих полов *B. gratissima* и *B. linga spilosomoides*. Для всех включенных в статью видов даны диагнозы.

INTRODUCTION

Barsine Walker, 1854 is a large genus of lichen-moths (family Erebidae, subfamily Arctiinae, tribe Lithosiini) including about a hundred of valid species distributed in Oriental tropics. A number of species is also known from the Russian Far East, Japan, Korea, China and Taiwan. The present paper is devoted to the taxonomy of some species of *Barsine* from Himalaya, China and Indochina.

The species *Lyclene spilosomoides* Moore, 1878 was described from West Himalaya and reported also for East Himalaya and South China as member of genera *Lyclene* Moore, [1860] or *Miltochrista* Hübner, [1819] (Strand, 1922; Daniel, 1952; Fang, 2000; Singh *et al*., 2014; Kirti & Singh, 2015). During examination of extensive Lithosiini materials from Himalaya, China and Indochina, we found that there are several species with similar appearance characterized by large size, yellow forewing ground color and reduced pattern consisting of rows of blackish dots or short strips. After examination of the type materials we stated that true *spilosomoides* belongs to the genus *Barsine* and is distributed only in West Himalaya, whereas in East Himalaya females of *Barsine defecta* Walker, 1854 having yellow ground color and reduced pattern are erroneously treated as *spilosomoides*. Chinese populations having yellow ground color and reduced pattern in both sexes and described by Daniel (1952) as two different subspecies of *spilosomoides* belong to two different species, *Barsine kulingensis* (Daniel, 1952), comb. et stat. n. and *Barsine gilveola* (Daniel, 1952), comb. n. At the same time the detailed comparison of the specimens of *spilosomoides* from West Himalaya and series of similar species *Barsine linga* Moore, 1859 widespread from Himalaya to SW China and N Thailand demonstrated absence of significant differences in the male genitalia of these taxa, therefore here we treat *spilosomoides* only as a western subspecies of *linga*, i.e. *Barsine linga spilosomoides* (Moore, 1878), comb. et stat. n.

The examination of different populations of "*Barsine defecta*" also demonstrated their belonging to two different species, *B. defecta* widespread in Himalaya, North Myanmar and SW China, and *Barsine gratissima* (de Joannis, 1930), comb. n. described from North Vietnam and distributed in North Thailand, North Laos and North Vietnam. The populations of *B. defecta* from NW China differ externally and in the genitalia structures from those from Himalaya and Myanmar and are described here as *B. defecta rubella* Volynkin et Černý, subsp. n. The populations of *B. gratissima* from North Thailand and Laos, reported for Thailand as *B. defecta* (Černý & Pinratana, 2009), also have significant differences in the wing coloration and male genitalia structures and are described here as *B. gratissima versicolor* Volynkin et Černý, subsp. n.

MATERIAL AND METHODS

The paper is based on the collections of Museum Witt / Zoologische Staatssammlung, München (MWM/ZSM, Munich, Germany), Natural History Museum, London (formerly British Museum of Natural History, NHMUK, London, UK), Zoologisches Forschungsmuseum Alexander Koenig (ZFMK, Bonn, Germany), Museum National d'Histoire Naturelle (MNHN, Paris, France), Naturkunde Museum (NKMB, Berlin, Germany), and the private collections of Anton Volynkin (CAV, Barnaul, Russia) and Karel Černý (CKC, Innsbruck, Austria).

The genitalia were dissected and mounted in euparal on glass slides. Photos of imago where taken using the camera Nikon D3100/AF-S Nikkor, 18–55 mm. Photos of the genitalia where taken by same camera attached to a microscope with an LM-scope adapter. The terminology of the *Barsine* male and female genitalia structures is used following Volynkin & Černý (2016).

TAXONOMY

Family Erebidae Leach, [1815]

Subfamily Arctiinae Leach, [1815]

Tribe Lithosiini Billberg, 1820

Subtribe Nudariina Börner, 1920

Genus *Barsine* Walker, 1854

Barsine Walker, 1854: 546.

Type species: *Barsine defecta* Walker, 1854, by subsequent designation (Kirby, 1892).

***Barsine defecta defecta* Walker, 1854**

Figs 1–7, 27, 35

Barsine defecta Walker, 1854: 546 (Type locality: [Nepal] "Nepaul").

Lyclene indistincta Moore, 1878: 33 (Type locality: [NE India, north of West Bengal, Darjeeling] "Darjiling"), **syn. n.**

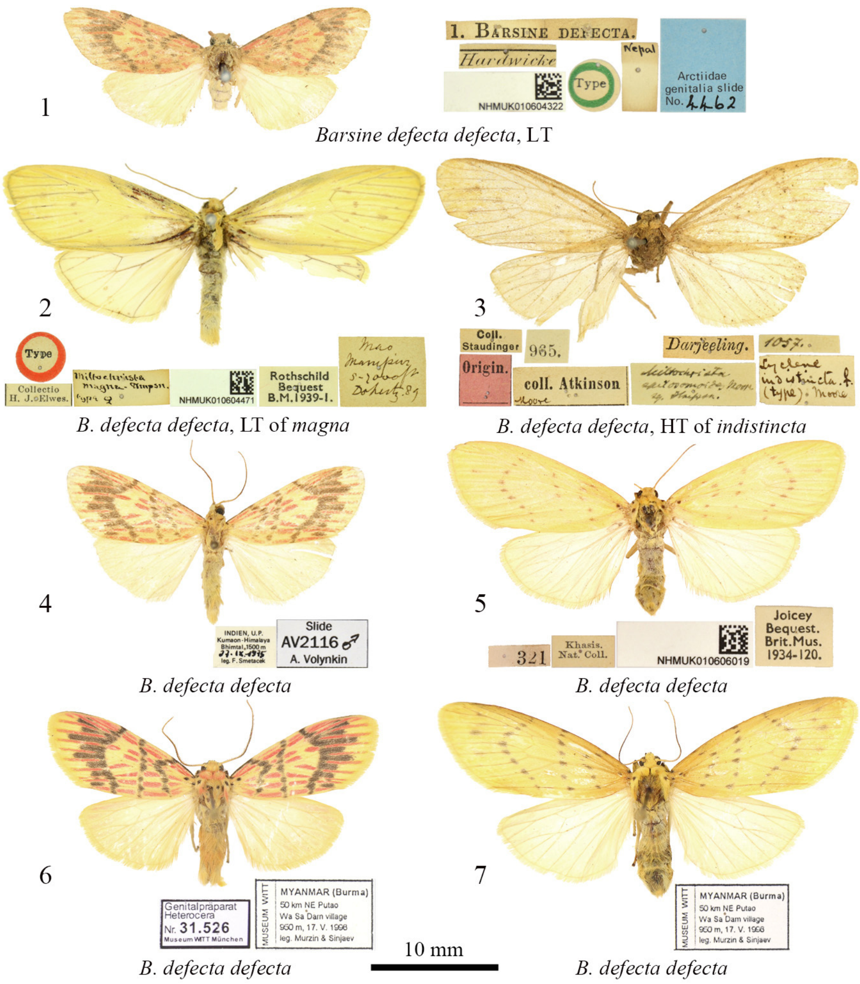
Miltochrista magna Hampson, 1894: 112 (Type locality: [NW India]"Manipur; [Myanmar] "Bernardmyo"), **syn. n.**

TYPE MATERIAL. **Lectotype** of *Barsine defecta* Walker (designated by Hampson (1900)) (Fig. 1): ♂, handwritten label "Nepal" / printed label "1. *Barsine defecta*" / printed label "Hardwicke" / round printed label with a green circle "Type" / "Arctiidae genitalia slide No. [printed] 4462 [handwritten]" / printed label with QR-code "NHMUK010604322" (NHMUK). **Holotype** of *Lyclene indistincta* Moore (Fig. 3): ♀ without abdomen, handwritten label "*Lyclene indistincta*. ♀. (type) Moore" / printed label "Darjeeling." / printed label "coll. Atkinson" / printed label "Coll. Staudinger" / pink printed label "Origin." / printed label "965" / handwritten label "1057." / handwritten label "*Miltochrista spilosomoides* Moore, det. Hmpsn." (NKMB). **Lectotype** of *Miltochrista magna* Hampson (designated herein) (Fig. 2): ♀, handwritten label "*Miltochrista magna* Hmpsn. type ♀" / round printed label with a red circle "Type" / handwritten label "Mao Manipur, 5–7000 ft., Doherty. [18]89" / printed label "Collectio H.J. Elwes" / printed label "Rothschild Bequest B.M.1939-I." / printed label "NHMUK010604471" (NHMUK).

OTHER MATERIAL EXAMINED. More than 150 specimens of both sexes from Nepal, N and NE India (Uttar Pradesh, West Bengal, Sikkim, Assam, Meghalaya), N Myanmar (Kachin State) (MWM/ZSM, NHMUK, ZFMK, CKC).

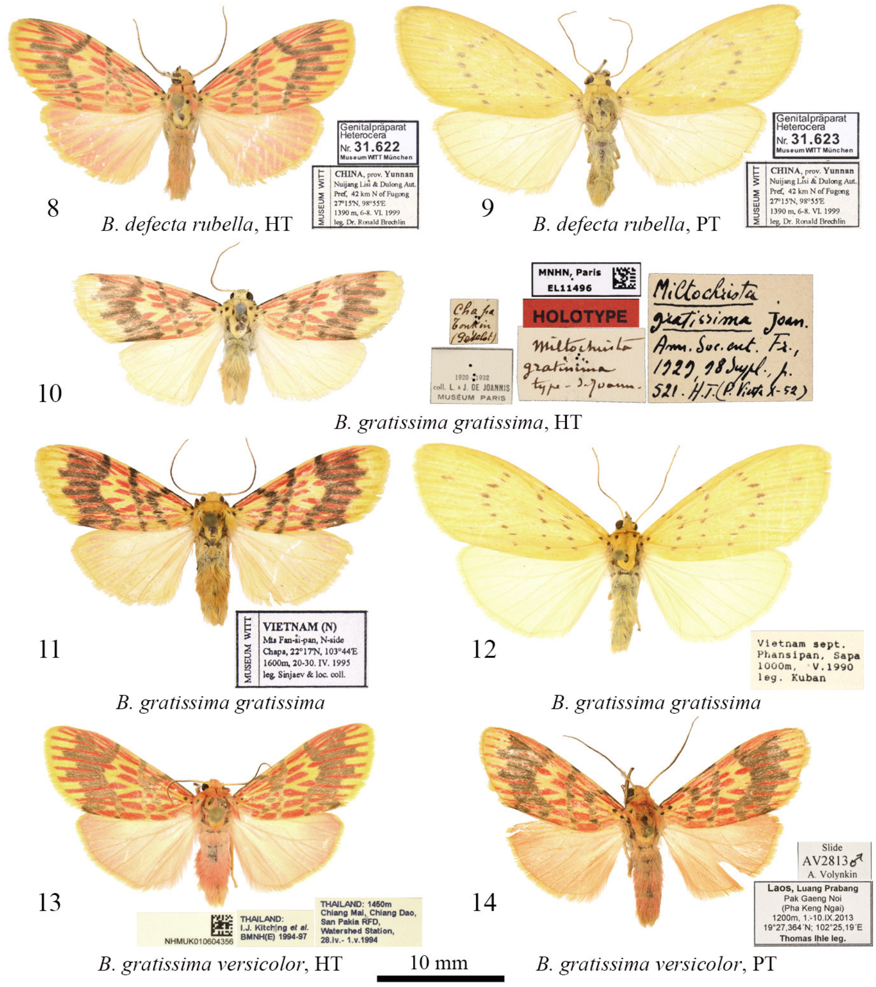
TAXONOMIC NOTES. *Lyclene indistincta* was synonymized with *B. spilosomoides* by Hampson (1900), *Miltochrista magna* was synonymized also with *B. spilosomoides* by Daniel (1952). Examination of the type specimens of *Lyclene spilosomoides* (Figs 19, 32) described from NW India and *Lyclene indistincta* (Fig. 3) and *Miltochrista magna* (Fig. 2) described from NE India demonstrated that two latter taxa are not conspecific to *spilosomoides*, but their type specimens are identical to females of *Barsine defecta* which is widespread and common in eastern Himalaya, therefore here we synonymize *Lyclene indistincta* and *Miltochrista magna* with *Barsine defecta*.

In the original description of *Miltochrista magna*, Hampson (1894) reported two localities, Manipur (NE India) and Bernardmyo (Myanmar), but mentioned only one type and not a type series ("Type in coll. Elwes"). In the NHMUK collection, we found only female specimen from Manipur labeled as type, but taking into account two localities mentioned in the original description, we must assume the existence of the type series. To avoid any confusion in the future, we designate here the specimen from Manipur as a lectotype (Fig. 2).



Figs 1–7. *Barsine defecta defecta*, adults: 1 – ♂, holotype, Nepal (©NHMUK); 2 – ♀, lectotype of *Miltochrista magna* Hampson, [NE India] Manipur (©NHMUK); 3 – ♀, holotype of *Lyclene indistincta* Moore, [NE India, north of West Bengal] Darjeeling (NKMB); 4 – ♂, N India, Uttar Pradesh (ZFMK); 5 – ♀, [NE India, Meghalaya] Khasis (©NHMUK); 6 – ♂, N Myanmar (MWM/ZSM); 7 – ♀, N Myanmar (MWM/ZSM).

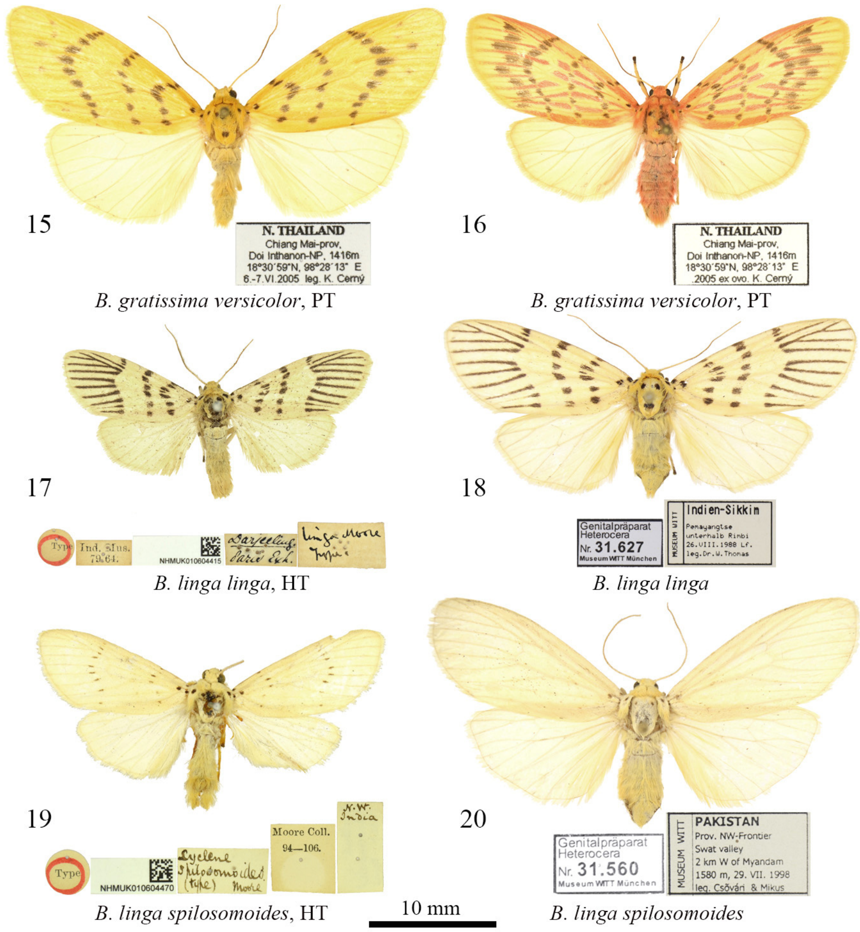
DIAGNOSIS. Externally, the species (Figs 1–7) is similar to its sister species *B. gratissima*, especially its western subspecies *B. gratissima versicolor* subsp. n. (Figs. 13–16), but differs clearly in both male and female genitalia (see the genital differences between these species in the diagnosis of *B. gratissima*). Unlike *B. gratissima versicolor* (Figs 15, 16), females of *B. defecta* (Figs 2, 3, 5, 7, 9) have stably yellow forewing coloration without



Figs 8–14. *Barsine* spp., adults: 8 – *B. defecta rubella*, holotype ♂, China, Yunnan (MWM/ZSM); 9 – *B. defecta rubella*, paratype ♀, China, Yunnan (MWM/ZSM); 10 – *B. gratissima gratissima*, holotype ♂, [N Vietnam] Cha pa, Tonkin (MNHN, photo by J. Barbut); 11 – *B. gratissima gratissima*, ♂, N Vietnam, Fan-si-pan Mts. (MWM/ZSM); 12 – *B. gratissima gratissima*, ♀, N Vietnam, Fan-si-pan Mts. (CKC); 13 – *B. gratissima versicolor*, holotype ♂, N Thailand, Chiang Mai prov. (©NHMUK); 14 – *B. gratissima versicolor*, paratype ♂, N Laos, Luang Prabang prov. (CKC).

red markings and vary only in the size of black pattern elements and sometimes in the shape of the forewing apex. Male specimens of *B. defecta* (Figs 1, 4, 6, 8) significantly vary in their wing coloration and size, but have almost invariable genital structure. The population from SW China (Yunnan) (Figs 8, 9) differs clearly from other known populations from Himalaya and Myanmar by the slightly broader forewings, more colorful forewings and pink hindwings in males and treated here as a distinct subspecies, *B. defecta rubella* subsp. n.

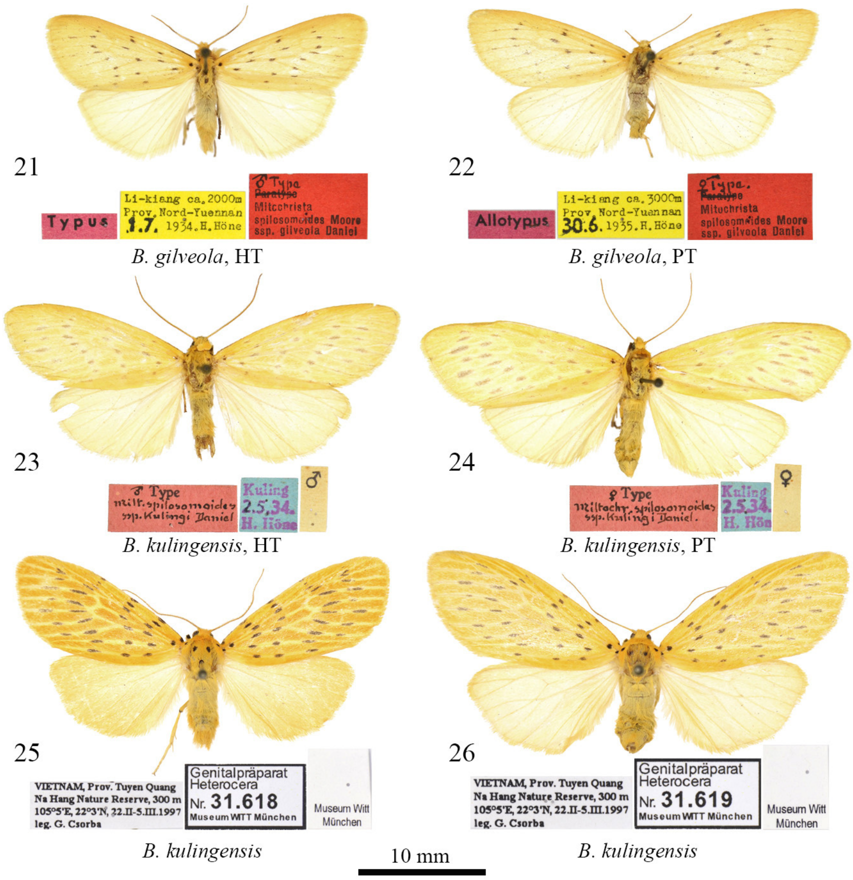
DISTRIBUTION. Himalaya (Nepal, N and NE India), N Myanmar (Burma) (Kishida, 1993; 1994; Kirti & Singh, 2016). Records for Chinese provinces Guangxi and Guizhou (Fang, 2000) can belong to *B. gratissima* and need confirmation. Records from Thailand and Vietnam (Černý & Pinratana, 2009) belong to *B. gratissima versicolor* subsp. n.



Figs 15–20. *Barsine* spp., adults: 15 – *B. gratissima versicolor*, paratype ♀, N Thailand, Chiang Mai prov. (CKC); 16 – ditto (CKC); 17 – *B. linga linga*, holotype ♂, [NE India] Darjeeling (©NHMUK); 18 – *B. linga linga*, ♀, NE India, Sikkim (MWM/ZSM) 19 – *B. linga spilosomoides*, holotype ♂, NW India (©NHMUK); 20 – *B. linga spilosomoides*, ♀, N Pakistan, prov. NW-Frontier (MWM/ZSM).

Barsine defecta rubella **Volynkin et Černý, subsp. n.**
Figs 8, 9, 28, 36

TYPE MATERIAL**. Holotype** (Figs 8, 28): ♂, China, Prov. Yunnan, Nuijang Lisi & Dulong Aut. Pref., 42 km N of Fugong, 27°15'N, 98°55'E, 1390 m, 6–8.VI.1999, leg. Dr. Ronald Brechlin, slide MWM 31622 Volynkin (MWM/ZSM). **Paratypes**: same data is in the holotype, 13 ♂, 6 ♀, slide MWM 31623 (♀) Volynkin (MWM/ZSM); same locality and collector, but 15–27.X.1999, 27 ♀ (MWM/ZSM); China, prov. W Yunnan, Mon Ding county, 1300 m, 25°19'N, 101°32'E, 16.III.–10.IV.2000, 2 ♀, lg. local collectors, coll. Dr. Ronald Brechlin (MWM/ZSM); China, Yunnan prov., Fugong county, Lishadi (=Walo), 27°15'N, 98°55'E, 1390 m, 42 km N of Fugong, 15–27.X.1999, 4 ♀, leg. Dr. Ronald Brechlin (MWM/ ZSM); China, prov. W Yunnan, Xishuangbanna Dai auton. pref., Puwen, 30 km SSW Simao, 900 m, 22'30"N 100'02"E, 16.III.–10.IV.2000, 3 ♀, lg. Brechlin's loc. coll. (MWM/ ZSM).



Figs 21–26. *Barsine* spp., adults: 21 – *B. gilveola*, holotype ♂, China, Yunnan (ZFMK); 22 – *B. gilveola*, paratype ♀, China, Yunnan (ZFMK); 23 – *B. kulingensis*, holotype ♂, China, Jiangxi, Jiujiang (ZFMK); 22 – *B. kulingensis*, paratype ♀, China, Jiangxi, Jiujiang (ZFMK); 23 – ♂, N Vietnam, Tuyen Quang prov. (MWM/ZSM); 24 – ♀, N Vietnam, Tuyen Quang prov. (MWM/ZSM).

DIAGNOSIS. Males of *B. defecta rubella* subsp. n. (Fig. 8) differ from those of the nominate subspecies (Figs 1, 4, 6) by the slightly broader forewings, the dark yellow forewing ground color (whereas in *B. d. defecta* the forewing ground color is bright yellow), the slightly broader and darker red elements of the forewing pattern, and the pink ground color of hindwings with dark yellow suffusion along the veins (whereas in *B. d. defecta* the hindwing ground color is pale yellow, rarely with slight pinkish suffusion in the terminal area only). The male genitalia (Fig. 28) are very similar to those of the nominate subspecies (Fig. 27) and differ only by the slightly smaller dorsal lobe and the tapered tip of the distal lobe of the distal saccular process. The female genitalia (Fig. 36) have no significant differences from those of *B. defecta defecta* (Fig. 35).

DISTRIBUTION. SW China (Yunnan).

Barsine gratissima gratissima **(de Joannis, 1930), comb. n.**
Figs 10–12, 29, 37

Miltochrista gratissima de Joannis, 1930: 759 (Type locality: [N Vietnam] "Cha pa").

TYPE MATERIAL. Photographs of the **holotype** (Fig. 10): ♂, handwritten label "*Miltochrista gratissima* Joan., Ann. Soc. ent. Fr., 1929, 18 Suppl., p. 521. H.T. (P. Viata X-52)" / handwritten label "Cha pa, Tonkin, Pételot" / handwritten label "*Miltochrista gratissima* type – de Joan." / red printed label "Holotype" / printed label "1920–1932, coll. L. & J. de Joannis, Muséum Paris" / printed label with QR-code "MNHN, Paris, EL11496" (MNHN).

OTHER MATERIAL EXAMINED. Vietnam (N), Mt. Fan-si-pan, N side, Chapa, 22°17'N, 103°44'E, 1600 m, 20–30.IV.1995, 10 ♂, leg. Sinjaev & loc. coll. (MWM/ZSM); same locality and collectors, but 1600–1800 m, 15–25.IV.1995, 1 ♀ (MWM/ZSM); same locality and collectors, but IX.1994, 1 ♀ (MWM/ZSM); Vietnam sept., Phansipan, Sapa, 1000 m, V.1990, 11 ♂, 3 ♀, leg. V. Kubáň, slides AV2501♂, AV2814♀ Volynkin (CKC); N Vietnam, Sa Pa, Hoang Lien Son Distr., 1600 m, 11–16.V.1990, 2 ♂, 1 ♀, leg. J. Horák (CKC).

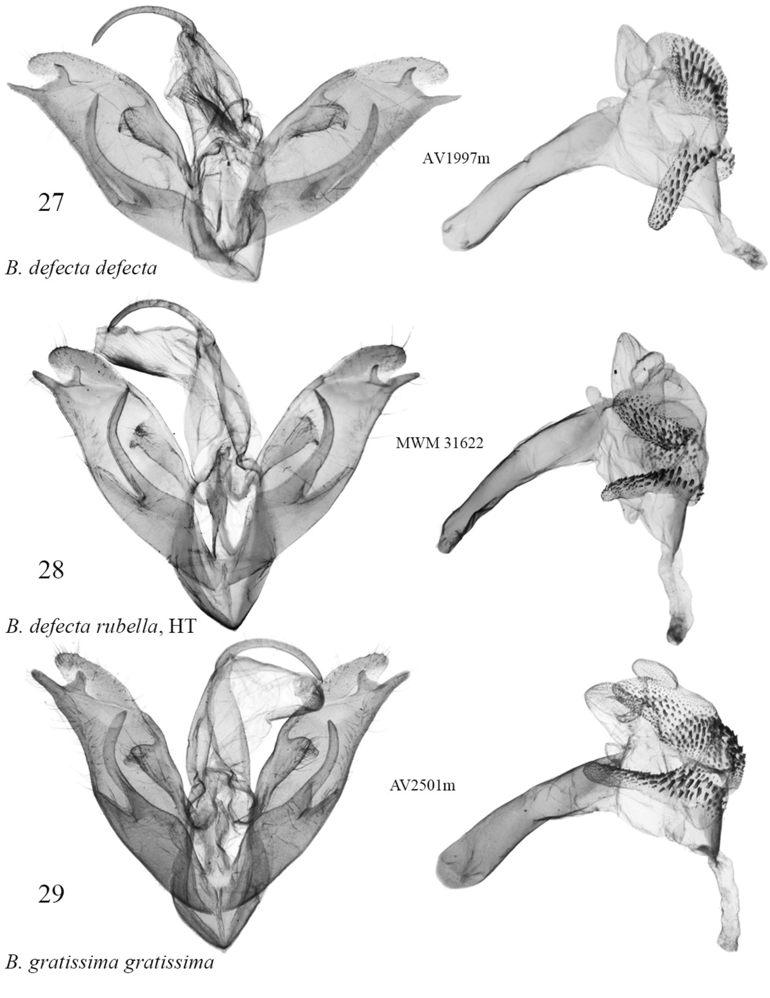
DIAGNOSIS. Externally, males of the nominate subspecies of *B. gratissima* (Figs 10, 11) are similar to those of the nominate subspecies of its sister species *B. defecta* (Figs 1, 4, 6), but differ clearly by absence of reddish strips on the veins in the subterminal area of forewing. The male genitalia of *B. gratissima* (Fig. 29) differ from those of *B. defecta* (Figs 27–28) by the slightly narrower medial section of valva, the slightly narrower medial costal process, the slightly shorter basal saccular process with tapered tip, the thicker and apically blunt lobes of distal saccular process, and weaker cornuti on the largest lobe of 2nd medial diverticulum of vesica; the female genitalia (Fig. 37) differ by the shorter sclerotized posterior section of ductus bursae, the narrower corpus bursae, and presence of a round signum in the medial section of corpus bursae.

DISTRIBUTION. North Vietnam (de Joannis, 1930). Reported for Vietnam by Černý & Pinratana (2009) as *B. defecta.* Probably the records of *B. defecta* for Chinese provinces Guangxi and Guizhou (Fang, 2000) also belong to *B. gratissima gratissima*, but we have no available material for confirmation.

Barsine gratissima versicolor **Volynkin et Černý, subsp. n.**
Figs 13–16, 30, 38

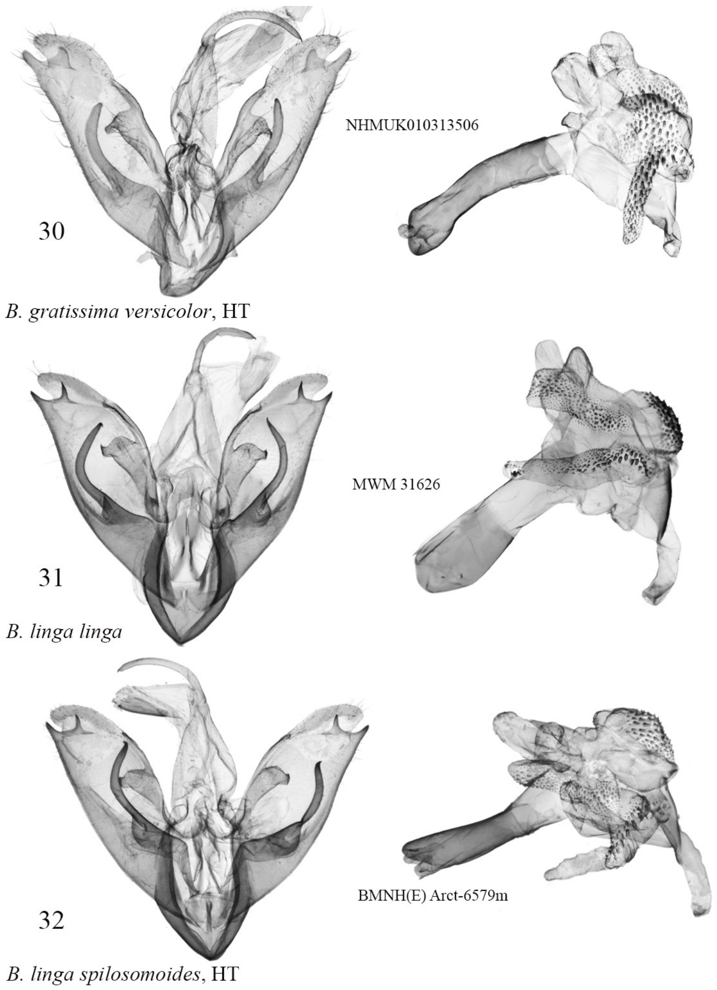
TYPE MATERIAL. **Holotype** (Figs 13, 30): ♂, Thailand: 1450 m, Chiang Mai, Chiang Dao, San Pakia RFD, Watershed Station, 28.IV.–1.V.1994 / Thailand: I.J. Kitching *et al.*, BMNH(E) 1994-97 / NHMUK010604356 / slide NHMUK010313506 Volynkin (NHMUK).

Paratypes: Thailand, Mt. Doi. Phahompok, 14 km NW of Fang, 1700 m, 16.X.2000, 1 ♂, leg. local collector (MWM/ZSM); Thailand, Chiang Mai province, Doi Inthanon National Park, km 43.5 road (N of) Chom Thong - summit 5.5. km above checkpoint 2, 2050 m, lower montane forest, 15–21.XI.1998, 1 ♂, leg./ex coll. Dr. Ronald Brechlin, slide MWM 31570 Volynkin (MWM/ZSM); Thailand, Chiang Mai province, Doi Inthanon National Park, km 37–38 road (N of) Chom Thong - summit near/around checkpoint 2, 1730 m, lower montane forest, 12–22.XI.1998, 1 ♂, leg./ex coll. Dr. Ronald Brechlin, slide MWM 31571 Volynkin (MWM/ZSM); N. Thailand, Chiang Mai, Fang, Doi Pha Hom Pok, 1630 m, 20°07´20"N, 99°10´52"E, 24.IV.2006, 1 ♀, leg. K. Černý (CKC); N. Thailand, Chiang Mai,



Figs 27–29. *Barsine* spp., male genitalia: 27 – *B. defecta defecta*, NE India, Darjeeling, slide AV1997m Volynkin; 28 – *B. defecta rubella*, holotype, China, Yunnan, slide MWM 31622 Volynkin; 29 – *B. gratissima gratissima*, N Vietnam, Fan-si-pan Mts., slide AV2501m Volynkin.

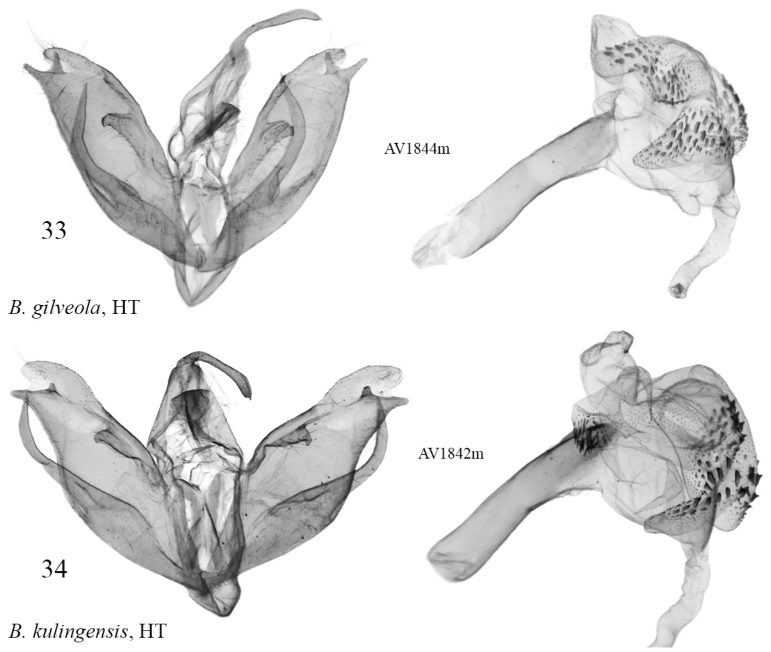
Fang, Doi Pha Hom Pok, 2110 m, 20°06'35"N, 99°07'41"E, 22–23.IV.2006, 1 ♀, leg. K. Černý (CKC); N. Thailand, Chiang Mai, Fang, Doi Pha Hom Pok, 2050 m, 20°07'30"N, 99°08'49"E, 21–25.VIII.2006, 2 ♂, 1 ♀, leg. T. Ihle (CKC); N. Thailand, Chiang Mai, Fang, Doi Ang Khang, 1425 m, 19°54'11"N, 99°2'32"E, 25–26.IV.2006, 1 ♂, 3 ♀, leg. K. Černý (CKC); same locality, but 25–26.V.2011, 2 ♀, leg. K. Černý (CKC); same locality, but 19–23.IX.2007, 2 ♀, leg. T. Ihle (CKC); same locality and collector, but 5.VI.2006, 2 ♀ (CKC); North Thailand, Prov. Nan, Doi Phuka NP, 1350 m, between Pua and Bo Luang, 101°05'E, 19°12'N, 03.XI.2002, 2 ♀, leg. B. Herczik et G. Ronkay (CKC); NW Thailand, Mae Hong



Figs 30–32. *Barsine* spp., male genitalia: 30 – *B. gratissima versicolor*, holotype, N Thailand, Chiang Mai prov., slide NHMUK010313506 Volynkin (©NHMUK); 31 – *B. linga linga*, NE India, Sikkim, slide MWM 31626 Volynkin; 32 – *B. linga spilosomoides*, holotype, NW India, slide BMNH(E) Arct-6579m Volynkin (©NHMUK).

Son, Ban Mua 1 Po, 1600–2000 m, 19–23.V.1991, 1 ♂, J. Horák leg (CKC); N. Thailand, Lampang, Chae Son NP, 1496 m, 18°51'22"N, 99°22'3"E, 9.VI.2005, 4 ♂, 4 ♀, leg. K. Černý (CKC); N. Thailand, Chiang Mai, Doi Inthanon-NP, 1416 m, 18°30'59"N, 98°28'13"E, 6–7.VI.2005, 2 ♂, 7 ♀, leg. K. Černý, slide AV1798♂ Volynkin (CKC, CAV); N. Thailand, Chiang Mai, Doi Inthanon-NP, 1416 m, 18°30'59"N, 98°28'13", E, female 6–7.VI.2005, 4 ♂, 5 ♀, ex ovo, K. Černý (CKC); same locality and collector, but 7–8.V.2008, 2 ♀, slide AV1799♀ Volynkin (CKC, CAV); N. Thailand, Chiang Mai, Doi Inthanon-NP, 1416 m, 18°30'59"N, 98°28'13"E, 30.IV.2006, 1 ♀, leg. K. Černý (CKC); N. Thailand, Chiang Mai, Doi Inthanon-NP, 1500 m, 18°31'5"N, 98°31'50"E, 28–29.IV.2006, 1 ♀, leg. Černý (CKC); Thailand, Changwat Chiang Mai, 20 km NW of Sop Kha, 2 km S of Kop Dong, 1800 m, 13.IX.1999, 1 ♀, leg A. Szabó et Z. Czare (CKC); Laos, Luang Prabang, Pak Gaeng Noi (Pha Keng Ngai), 1200 m, 19°27.364'N 102°25.19'E, 1–10.IX.2013, 2 ♂, Thomas Ihle leg., slides AV2812♂, AV2813♂ Volynkin (CKC).

DIAGNOSIS. Externally, males of *B. gratissima versicolor* subsp. n. (Figs 13, 14) differ clearly from those of the nominate subspecies (Figs 10, 11) by the larger red spots of forewing, paler blackish strips and spots, presence of red strips on veins in the terminal area of forewing, and darker pink hindwings, whereas in *B. gratissima gratissima* the red spots are narrower, blackish pattern elements are darker, and strips on veins in the terminal area are dark yellow or slightly pinkish and not red, and the hindwings are yellow with slight pinkish suffusion in



Figs 33–34. *Barsine* spp., male genitalia: 33 – *B. gilveola*, holotype, China, Yunnan, slide AV1844m Volynkin 34 – *B. kulingensis*, holotype, China, Jiangxi, Jiujiang, slide AV1842m Volynkin.

the subterminal and terminal areas. Females (Figs 15, 16) are similar to those of the nominate subspecies (Fig. 12), but apart from the yellow one (Fig. 15), the form with presence of pale red spots on forewings is common (Fig. 16). Both color forms of females are found within same populations in North Thailand. By the wing coloration, *B. gratissima versicolor* subsp. n. is very similar to Chinese *Barsine defecta rubella* subsp. n. (Figs 8, 9) and differs by the more diffuse blackish elements of the forewing pattern. The male genitalia of *B. gratissima versicolor* subsp. n. (Fig. 30) are very similar to those of the nominate subspecies (Fig. 29) and differ only by the slightly thicker lobes of the distal saccular process. The female genitalia (Fig. 38) have no significant differences from those of *B. gratissima gratissima* (Fig. 37).

DISTRIBUTION. North Thailand (provinces Mae Hong Son, Chiang Mai, Nan and Lampang), North Laos (Luang Prabang province). The subspecies was reported for Thailand by Černý & Pinratana (2009) as *B. defecta*.

Barsine linga spilosomoides **(Moore, 1878), comb. et stat. n.**

(Figs 19, 20, 32, 40)

Lyclene spilosomoides Moore, 1878: 33 (Type locality: "N.W. India").

TYPE MATERIAL EXAMINED. **Holotype** (Figs 19, 32): ♂, handwritten label "N.W. India" (upper side) | "*Lyclene spilosomoides* (type) Moore" (underside) / printed label "Moore Coll. 94–106" / printed round label with red circle "Type" / printed label with QR-code "NHMUK010604470", slide BMNH(E) Arct-6579♂ Volynkin (NHMUK).

OTHER MATERIAL EXAMINED. Pakistan, prov. NW-Frontier, Thakot village, 550 m, 19.X.1998, 2 ♂, leg. Atilla Szabó & Péter Hentschel, slide MWM 31558 Volynkin (MWM/ZSM); Pakistan, prov. NW-Frontier, Swat valley, 2 km W of Myandam, 1580 m, 29.VII.1998, 4 ♂, 2 ♀, leg. Csõvári & Mikus, slides MWM 31559 Volynkin (♂), MWM 31560 Volynkin (♀) (MWM/ZSM).

DIAGNOSIS. The subspecies differs from *B. linga linga* (Figs 17, 18) by strongly reduced black pattern elements. The male genitalia (Fig. 32) are very similar to those of *B. linga linga* (Fig. 31) and differ only by the slightly narrower medial costal process and the slightly larger cornuti in vesica; the female genitalia (Fig. 40) have slightly shorter and narrower sclerotized posterior section of ductus bursae than those of the nominate subspecies (Fig. 39).

DISTRIBUTION. *Barsine linga spilosomoides* is known from West Himalaya (NW India, N Pakistan). The nominate subspecies is widespread in East Himalaya, NW China (Yunnan) and N Thailand. Records of *Barsine "spilosomoides"* for East Himalaya (Singh *et al*., 2014; Kirti & Singh, 2015) belong to females of *B. defecta*, and records for SE China (Zhejiang, Jiangxi, Fujian) (Daniel, 1952; Fang, 2000) belong to *B. kulingensis.*

Barsine gilveola (Daniel, 1952), **comb. n.**

Figs 21, 22, 33, 41

Miltochrista (Barsine) spilosomoides gilveola Daniel, 1952: 78 (Type locality: [China, Yunnan] "Nord Yuennan: Li-kiang").

TYPE MATERIAL EXAMINED. **Holotype** (Figs 21, 33): ♂, printed yellow label "[China, Yunnan, Lijiang] Li-kiang, ca. 2000 m, Prov. Nord-Yuennan, 1.VII.1934, H. Höne" / printed red label "♂ Type *Miltochrista spilosomoides* Moore ssp. *gilveola* Daniel" / printed pink label "Typus", slide AV1844♂ Volynkin (ZFMK). **Paratypes**: [China, Yunnan, Lijiang] Li-kiang, ca. 2000 m, Prov. Nord-Yuennan, 29.V. (♂), 3.VI. (♂), 11.VI. (♂), 22.VI.

(♂), 25.VI. (♀), 7.VII. (♂), 8.VII. (2 ♀), 10.VII. (♀), 7.VIII. (♀) 1934, 5 ♂, 5 ♀, H. Höne (ZFMK); [China, Yunnan, Lijiang] Li-kiang, ca. 3000 m, Prov. Nord-Yuennan, 11.VI. (♂), 17.VI. (♂), 21.VI. (♀), 30.VI. (♀), 4.VII. (♀), 9.VII. (♀), 10.VII. (♀), 12.VII. (♂), 15.VII. (♀) 1935, 3 ♂, 6 ♀, H. Höne, slide AV1845♀ Volynkin (ZFMK); [China, Yunnan, Lijiang] Li-kiang, ca. 4000 m, Prov. Nord-Yuennan, 26.VI.1935, 1 ♀, H. Höne (ZFMK).

OTHER MATERIAL EXAMINED. China, Yunnan, Tse Kou, 2000 m, 28°2´N; 98°54´E, 5–10.VI.2011, 2 ♀, leg. Jiří Klír (CKC); China, Yunnan prov., Dali Bai autonom. pref., Yunlong county, Fengshining Mts., 2460 m, 13 km N oc Coajian, 25.46°N 99.06°E, 10–20.V.1999, 1 ♂, leg/ex coll. Dr. R. Brechlin (CKC); China, Sichuan, Wolong nat. res., 31°03'N 103°12'E, 1800 m, 3.VI.2004, 1 ♂, leg. Jiří Klír (CKC); China, Guangxi, Yuecheng Ling, 750 m, 26°17'N 110°56'E, 17–18.VI.2008, 1 ♀, leg/coll. Viktor Sinjaev (CKC).

REMARK. Fang (2000) treated *Miltochrista gilveola* as a distinct species and illustrated its male genitalia. The examination of the holotype confirmed the correctness of the Fang's treatment.

DIAGNOSIS. Externally, the species (Figs 21, 22) is similar to *B. kulingensis* (Figs 23–26), but differs by its smaller size, paler ground color of forewings, absence of pale suffusion on veins on forewing, and smaller blackish elements of the forewing pattern. The male genitalia (Fig. 33) differ from those of *B. kulingensis* (Fig. 34) by the basally narrower valva, the larger medial costal process, the smaller distal membranous lobe of valva, the slightly shorter basal saccular process, the shape of the distal saccular process having much longer dorsal lobe and the narrower distal lobe, the much smaller basal diverticulum without spines, the longer 2nd medial diverticulum, and the shorter and broader 3rd medial diverticulum. The female genitalia (Fig. 41) differ by the larger papillae anales, the narrower antrum without apical lobes, the narrower sclerotized posterior section of ductus bursae, the weaker scobination of the posterior section of corpus bursae, and the smaller and weaker sclerotized appendix bursae.

DISTRIBUTION. China (Sichuan, Yunnan) (Daniel, 1952; Fang, 2000).

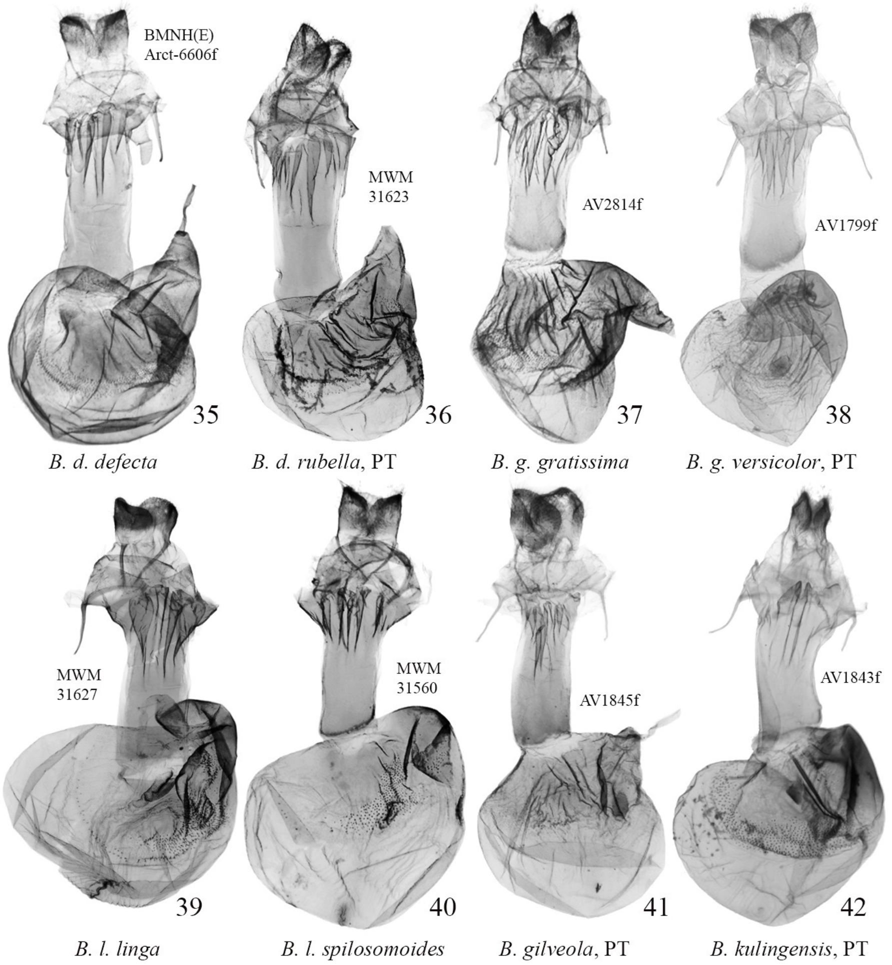
Barsine kulingensis (Daniel, 1952), **comb. et stat. n.**
Figs 23–26, 34, 42

Miltochrista (Barsine) spilosomoides kulingensis Daniel, 1952: 78 (Type locality: [China, Jiangxi, Jiujiang] "Kiukiang: Kuling").

TYPE MATERIAL EXAMINED. **Holotype** (Figs 23, 34): ♂, blue printed label "[China, Jiangxi, Jiujiang] Kuling, 2.V.[19]34, H. Höne" / printed label "♂" / pale red handwritten label "♂ Type *Milt. spilosomoides* ssp. *kulingi* Daniel", slide AV1842♂ Volynkin (ZFMK). **Paratypes**: same data as in the holotype, 1 ♂, 3 ♀, slide AV1843♀ Volynkin (ZFMK).

OTHER MATERIAL EXAMINED. [China, Zhejiang] West Tien-mu-shan, Prov. Chekiang, 17.IV., 23.IV., 25.IV., 26.IV., 27.IV., 28.IV., 29.IV., 2.V., 3.V., 7.V.1932, 34 ♂, 20 ♀, H. Höne, slides AV1999♂, AV2016♂, AV2000♀ Volynkin (ZFMK); China, Wuy Shan, Jiangxi-Fujian border, 50 km SE of Yingtan, 27°56'N, 117°25'E, 1600 m, IV.2002, 2 ♂, 4 ♀, leg. Siniaev & local coll. (MWM/ZSM); same locality and collectors, but III.2002, 1 ♂ (MWM/ZSM); Vietnam, prov. Tuyen Quang, Na Hang Nature Reserve, 300 m, 105°5'E, 22°3'N, 22.II.–5.III.1997, 17 ♂, 3 ♀, leg. G. Csorba, slides MWM 31618 Volynkin (♂), MWM 31619 Volynkin (♀) (MWM/ZSM); N Vietnam, 1400 m, Mai-chau, primary forest, 40 km SE Moc-chau, 20'50"N 104'50"E, 7–15.IV.1995, 3 ♂, 5 ♀, leg. Sinjaev & loc. coll., slide MWM 31620 Volynkin (♂) (MWM/ZSM); N Vietnam, 1600 m, Mt. Fan-si-pan (North), Cha-pa, primary forest, 22.17"N 103.44"E, 20–30.IV.1995, 22 ♂, 32 ♀, leg. Sinjaev & loc. coll., slide MWM 31621 Volynkin (♀) (MWM/ZSM).

REMARK. Daniel (1952) treated populations from Tianmu Mts. (Zhejiang) and vicinities of Jiujiang (Jiangxi) as different subspecies ("*spilosomoides*" and "*spilosomoides kulingensis*"). We examined the type material of *B. kulingensis* from Jiujiang and series of specimens from Zhejiang, Fujian and North Vietnam. *B. kulingensis* is characterized by the rather high external variability even within the same population and at the same time has stable male genitalia structure therefore different populations of *B. kulingensis* cannot be treated as subspecies.



Figs 35–42. *Barsine* spp., female genitalia: 35 – *B. defecta defecta*, NE India, Khasis, slide BMNH(E) Arct-6606f Volynkin (©NHMUK); 36 – *B. defecta rubella*, paratype, China, Yunnan, slide MWM 31623 Volynkin; 37 – *B. gratissima gratissima*, N Vietnam, Fan-si-pan Mts., slide AV2814f Volynkin; 38 – *B. gratissima versicolor*, paratype, N Thailand, Chiang Mai prov., slide AV1799f Volynkin; 39 – *B. linga linga*, NE India, Sikkim, slide MWM 31627 Volynkin; 40 – *B. linga spilosomoides*, N Pakistan, prov. NW-Frontier, slide MWM 31560 Volynkin; 41 – *B. gilveola*, paratype, China, Yunnan, slide AV1845f Volynkin; 42 – *B. kulingensis*, paratype, China, Jiangxi, Jiujiang, slide AV1843f Volynkin.

DIAGNOSIS. Externally, the species (Figs 23–26) is similar to *B. gilveola* (Figs 21, 22), but differs by its larger size, dark yellow ground color of forewings, presence of pale suffusion on veins on forewing, and larger blackish elements of the forewing pattern. The male genitalia (Fig. 34) differ from those of *B. gilveola* (Fig. 33) by the basally broader valva, the smaller medial costal process, the much larger distal membranous lobe of valva, the slightly longer basal saccular process, the shape of the distal saccular process having much shorter dorsal lobe and the thicker distal lobe, the much larger basal diverticulum with a cluster of spines on its tip, the shorter 2nd medial diverticulum, and the longer and narrower 3rd medial diverticulum. The female genitalia (Fig. 42) differ by the significantly smaller papillae anales, the broader antrum with two trigonal sclerotized apical lobes, the broader sclerotized posterior section of ductus bursae, the stronger scobination of the posterior section of corpus bursae, and the larger and more heavily sclerotized appendix bursae.

DISTRIBUTION. China (Jiujiang, Jiangxi, Fujian) (Daniel, 1952), N Vietnam.

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